

and/or in view of a newly proposed combination of Amick '981 with at least Lowden '331 and Mizuno. Applicant has studied the cited references and the new reasons expressed in the Office action in view of the pending claims, and Applicant respectfully traverses and requests reconsideration of the rejections in view of the following remarks.

As an initial matter, Applicant thanks the Examiner for his time and comments in a February 1, 2006 telephone conference with Applicant's undersigned attorney. In the interview, the cited patent to Mravic was discussed, and it was agreed that Mravic discloses the use of either a metal binder or a plastic binder, but not both. Comment was made that claim 2 of Mravic includes both binders; however, a review of the prosecution history of Mravic demonstrates that claim 2 was not supported by the original disclosure. No final agreement was made regarding the allowability of the pending claims, as the Examiner requested that Applicant traverse on the record the Examiner's position that the pending claims may be rejected by claim 2 of Mravic even though the claim is inconsistent and contradictory to the disclosure of Mravic.

As discussed in several of Applicant's prior responses, Mravic very clearly and expressly requires the addition of either a metal binder or a plastic binder, but not both. Therefore, Applicant respectfully submits that Mravic does not support, and actually teaches away from, a proposed obviousness rejection in which Mravic is relied upon to disclose a projectile that contains a tungsten-containing

component, a metal binder and a polymeric binder. For at least this reason, as well as the additional failures of Mravic to disclose or suggest the recited subject matter of the presently pending claims, Applicant requests that the rejections based on Mravic be reconsidered and withdrawn.

This is now Applicant's fifth response to an Office action for the present application. Applicant appreciates the Examiner's time considering the prior responses, but many of the prior responses have required considerable time and expense to rebut rejections in which the cited references clearly failed to disclose or suggest subject matter recited in the claims, to rebut obviousness-type double patenting rejections based on applications that failed to recite any of the claimed binders of the presently pending claims, to clarify co-inventorship inquiries when the present application only has a single inventor, and the like. Applicant's next response will be an appeal of any remaining rejections. As discussed in great detail in this and the four prior responses, the presently pending claims are directed to fairly specific articles that include a tungsten-containing powder with a metallic binder and a non-metallic binder that includes at least one of a thermoset resin or epoxy.

In independent claim 1, the article is a projectile having a density of at least 10 g/cc and which is formed from a compacted powder-form composition of matter that includes a tungsten-containing powder and a binder that includes a metallic binder component with at least 50 wt% tin and a non-metallic binder

component that includes at least one of a thermoset resin or epoxy and which comprises 0.25 to 3 wt% of the composition of matter. In independent claim 38, the article contains a compacted powder-form composition of matter that includes tungsten-containing powder with a binder powder that includes at least 10 wt% of a metallic binder component and 0.25 to 3 wt% of a non-metallic binder component that includes at least one of a thermoset resin or epoxy. In independent claim 68, the article is an unsintered, frangible firearms projectile that has a density of at least 10 g/cc and which includes at least 60 wt% tungsten-containing powder and less than 30 wt% of a binder that includes at least 70 wt% tin and at least 0.25 wt% of a flexible heat-curable epoxy.

None of the references of record, or any permissible combination thereof, discloses or suggests this subject matter. Applicant recognizes that the references disclose various tungsten-containing compositions of matter, as well as various alloys formed therefrom, sintered articles produced therefrom, plastics including these compositions, metallic binders, and the like. However, the cited references each are directed to subject matter that is distinguishable from the presently pending claims and which thereby prevents proper rejection of the pending claims.

In the fifth Office action, claims 1-2, 6-9, 12-14, 16-17, 20, and 36 were rejected under 35 U.S.C. § 103 as being obvious over the cited patents to Mravic '187 in view of West and WO '878. As expressed in the Office action, Mravic discloses a frangible projectile that includes a polymer binder and tungsten

or a ferrotungsten component, with Mravic disclosing a thermoset resin as an example of a polymeric binder. The Examiner recognizes that Mravic fails to disclose the inclusion of tin or bronze with a thermoset resin, but states that claim 1 of Mravic mentions tin (even though it is not recited elsewhere in the patent's specification) and that claim 2 recites the inclusion of a polymeric binder (even though the specification of Mravic very clearly states that a metallic binder and a polymeric binder are mutually exclusive choices of binders. Specifically, Mravic discloses hot compacted polymeric binders in column 5 and cold-compacted (and thereafter sintered) metallic binders in column 6. Therefore, the proposed obviousness combination requires a construction that is inconsistent with, and in fact conflicts with, the express language of Mravic.

When a reference, such as Mravic '187, clearly and unequivocally recites mutually exclusive elements, Applicant submits that it is improper to ignore this express language from the reference and to base an obviousness rejection upon the inclusion of both of the elements that were identified as being mutually exclusive. In the case at hand, Mravic could not be more clear that either a metal binder is used, with Mravic then reciting a specific procedure for utilizing such a metallic binder, or a plastic binder is used, with Mravic then reciting a very different procedure for utilizing a plastic binder. Applicant submits that the inclusion of both a plastic binder and a metallic binder is not properly disclosed in Mravic and that the specific disclosure of Mravic prevents an obviousness rejection that

requires both of these types of binders. Accordingly, Applicant requests that the rejections based on Mravic be reconsidered and withdrawn.

In addition to the above, many of the presently pending claims recite specific subject matter that is not disclosed or suggested in Mravic, such as the inclusion of a flexible epoxy, that the article is not sintered (claim 36), that the articles are shot (claims 6-7), that the articles have a density that exceeds the density of lead, etc. As Mravic fails to properly disclose or suggest the subject matter of pending claim 1, it follows that Mravic also fails to disclose or suggest this additional subject matter. Regarding the recited densities, Applicant agrees with the Examiner that Mravic mentions the desirability of producing a lead-substitute that has a density near that of lead, but Mravic's compositions all have densities that are less than that of lead. Accordingly, it follows that Mravic does not disclose or suggest articles having densities that exceed the density of lead, such as recited in claim 3.

For at least the above reasons, Applicant requests reconsideration and withdrawal of the rejections based on Mravic '187. In Applicant's response to the fourth Office action, additional reasons are presented why the secondary references to West and WO '878 are incompatible with the disclosure of Mravic and why the proposed three-way obviousness rejections based thereupon are improper and should be withdrawn. Applicant hereby incorporates the reasons expressed in Applicant's prior response by reference. For the purpose of brevity,

each of the previously presented reasons is not repeated herein. Upon review, however, it is clear that the proposed combinations of the disclosures of these references are not properly made and that the corresponding rejections should be withdrawn.

In addition to the above-discussed rejections that were based on Mravic ‘187 in combination with WO ‘878 and West, claims 3-5, 10, 12-13, and 21-22 stand rejected under 35 U.S.C. § 103 as being obvious over only Mravic ‘187. Applicant requests withdrawal of the rejections at least because the rejections of dependent claims based solely on Mravic ‘187 are improper in view of the acknowledged failure of Mravic ‘187 to properly disclose or suggest the subject matter of independent claim 1 and other claims from which these claims depend. In other words, if claim 1 required the Examiner to make a three-way combination of references, it follows that claims that depend from claim 1 cannot properly be rejected under only a single one of the cited references used in the three-way combination.

Moreover, Mravic fails to disclose or suggest the subject matter recited in these claims. For example, and as discussed above, Mravic fails to disclose compositions having a density that even reaches the density of lead, much less that exceeds the density of lead, as recited in claim 3. Mravic discusses the desirability of a lead-substitute having a density near the density of lead, and in fact refers to this as a “requirement” in column 3. It follows then that Mravic not only fails to

disclose a density of at least 12 g/cc, but also specifically teaches away from forming a lead-substitute having such a density.

With the withdrawal of the rejections based on Mravic, claims 2-10, 12-14, 16-17, 20-23, and 36 should be in a condition for allowance, as these claims are not otherwise rejected in the Office action. The remaining claims, namely, claims 1, 11, 27-31, 34-35, 37-39, 41-51, 54-58, and 64-76 stand rejected under 35 U.S.C. § 103 as being obvious over Amick '981 in view of Lowden et al. '331 in further view of Mizuno et al. Claim 52 stands rejected as being obvious over the above-discussed combination of three different references in further view of Eisner et al., and claim 53 stands rejected as being obvious over the above-discussed combination of three different references in further view of Bray et al. '379.

Applicant has studied these references, as well as the newly presented reasons for rejecting the claims based upon these references, and Applicant respectfully requests reconsideration and withdrawal of the same. Briefly put, like the previously discussed three-way combination of references based upon Mravic, the newly presented combination of references based upon Amick '981 includes impermissible combinations that even if made still fail to disclose or suggest the subject matter recited in the pending claims. Accordingly, withdrawal of the rejection is appropriate. Upon withdrawal of the rejections based upon Amick

‘981, at least claims 27-31, 34-35, 37-39, 41-48, and 63-76 should be allowable, as these claims were not otherwise rejected in the Office action.

As presented in the fifth Office action, Amick ‘981 discloses a projectile that includes a tungsten powder, a second metal powder, a binder, and a lubricant. As the Examiner correctly notes, Amick ‘981 requires that the projectile is sintered, fails to disclose or suggest the use of tin as a binder, is silent as to the type of binder to be used, and is silent as to the amount of binder to be used. As an initial matter based entirely upon the Examiner’s construction of the references, the proposed combination still requires a sintered projectile. Several of the pending claims are directed to an unsintered composition of matter, which Applicant believes the Examiner recognized by not rejecting claim 36. However, claims 55-56 and 68-71 also are directed to unsintered projectiles and therefore also should be allowable over the cited references. Accordingly, withdrawal of the rejections of claims 55-56 and 68-71 is requested.

Applicant further requests reconsideration and withdrawal of all of the rejections based upon Amick ‘981 because it is improper to use Applicant’s pending claims, which recite specific combinations of metallic and polymeric binder components, as a template to combine the cited references. As the Examiner correctly recognizes, Amick ‘981 fails to disclose or suggest the use of a metallic binder, much less a metallic binder that includes tin. Furthermore, Amick ‘981 fails to disclose or suggest the use of a polymeric binder component that

includes at least one thermoset resin or epoxy. Instead, Amick '981 discloses the inclusion of "up to several parts per hundred by weight of binders and lubricants such as paraffin wax, and/or of fluxes." This single mention of binders generically cannot and does not render the presently pending claims obvious. One of ordinary skill in the art would not have selected the particular combinations of binders recited in the presently pending claims, much less in the recited amounts, based upon Amick '981.

Furthermore, the secondary references are also incompatible with the proposed combination. For example, Lowden '331 discloses only the use of metallic binders and therefore teaches away from a combination of metallic and non-metallic binder components, much less a non-metallic binder component that includes at least one of a thermoset resin or epoxy. Lowden '331 is at least directed to the field of lead substitutes and firearm projectiles that include a tungsten-containing component. Mizuno, on the other hand, is not directed to the same field or endeavor as the presently pending claims. Instead, it is directed to molding motor parts from compositions that primarily include iron or ceramics. The produced motor components not only fail to include a tungsten-containing powder, but also would have a density much lower than that recited in the claims. Perhaps more importantly, Mizuno fails to disclose or suggest any use of a metallic binder component. Therefore, the proposed combination requires the combination of a reference that recites only a metallic binder with a reference that

is directed to an entirely different solution and recites only a polymeric binder. The disclosures of the cited references are in no way synergistic and instead specifically contradict each other. Applicant therefore submits that the rejections that require the proposed combination of Amick '981 with Lowden '331 and Mizuno are improper and should be withdrawn.

For at least the above reasons, Applicant submits that all of the issues raised in the fifth Office action have been addressed and overcome. If there are any remaining issues or if the Examiner has any questions, Applicant's undersigned attorney may be reached at the number listed below. Similarly, if the Examiner believes that a telephone interview may be productive in advancing prosecution of the present application, the Examiner is invited to contact Applicant's undersigned attorney.

Respectfully submitted,

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